Disclosure BOC8-2000-0079

Created By: James Lewis   **Created On:** 09/26/2000 09:28:51 AM
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Required fields are marked with the asterisk (*) and must be filled in to complete the form .

Summary

Status	Under Evaluation
Processing Location	BOC
Functional Area	Speech Development & Customization (█████████)
Attorney/Patent Professional	Richard Tomlin/Boca Raton/IBM
IDT Team	████████West Palm Beach/IBM
Submitted Date	09/26/2000 11:11:39 AM
Owning Division ███████	██
███████████ ██████	17
Incentive Program	
Lab	
Technology Code	

Inventors with Lotus Notes IDs

Inventors: James Lewis/West Palm Beach/IBM, Ciprian Agapi/West Palm Beach/IBM

Inventor Name > denotes primary contact	Inventor Serial	Div/Dept	Manager Serial	Manager Name
> Lewis, J.R. (Jim)	████	██████	████	█████████████
Agapi, Ciprian	████	██████	████	█████████

Inventors without Lotus Notes IDs

IDT Selection
Main Idea

*Title of disclosure (in English)
Compressed list presentation for speech user interfaces

*Idea of disclosure
1. Describe your invention, stating the problem solved (if appropriate), and indicating the advantages of using the invention.
When using a speech-only system (e.g., using a telephone to connect to a speech server), human memory limitations become an issue when presenting a list of choices to a user. This disclosure describes a method for compressing certain types of lists to make it easier for users to select items. The basic idea is to collect together items that start with one or more common content words, then to present this shorter list to users rather than making them listen to the entire list.

2. How does the invention solve the problem or achieve an advantage,(a description of "the invention", including figures inline as appropriate)?
Suppose the user of a book-ordering system has made a request that returns a large number of titles, as in:

Sys: Type of book?

User: What do you have on usability?

Sys: Searching ... Found 31 titles. Listing titles. For more information, speak a title.

        Ergonomics for Beginners
        Ergonomics in Computerized Offices
        Ergonomics: Advanced Methods
        The Ergonomics of Working Postures
        The Ergonomics of Workspaces and Machines
        Fitting the Task to the Human
        A Handbook of Work and Organizational Psychology
        Handbook of Control Design and Ergonomics
        Handbook of Human Factors and Ergonomics
        Handbook of Human-Computer Interaction
        Handbook of Manual Materials Handling
        Human Factors and Speech Technology
        Human Factors in Air Traffic Control
        Human Factors in Consumer Products
        Human Factors in Nuclear Safety
        Human Factors in Product Design
        The Human Factors of Alarm Design
        Risk
        Risk Analysis for Process Plant, Pipelines and Transport
        Risk Analysis in Project Management
        Risk and Misfortune
        Risk Management
        Usability Evaluation by Questionnaire
        Usability Evaluation in Industry
        Work and Aging
        Work and Health
        Work and Technology
        Work Design in Practice
        Work Fitness
        Work Rules
        Work-Related Musculoskeletal Disorders

User: Repeat.

Rather than listing all the titles individually, the application of this disclosure would result in the presentation of a smaller, more general list created by analyzing the initial words of each title, as in:

Sys: Type of book?

User: What do you have on usability?

Sys: Searching ... Found 31 titles. For more information, choose a title or title group.

        Ergonomics
        Fitting the Task to the Human
        Handbook
        Human Factors
        Risk
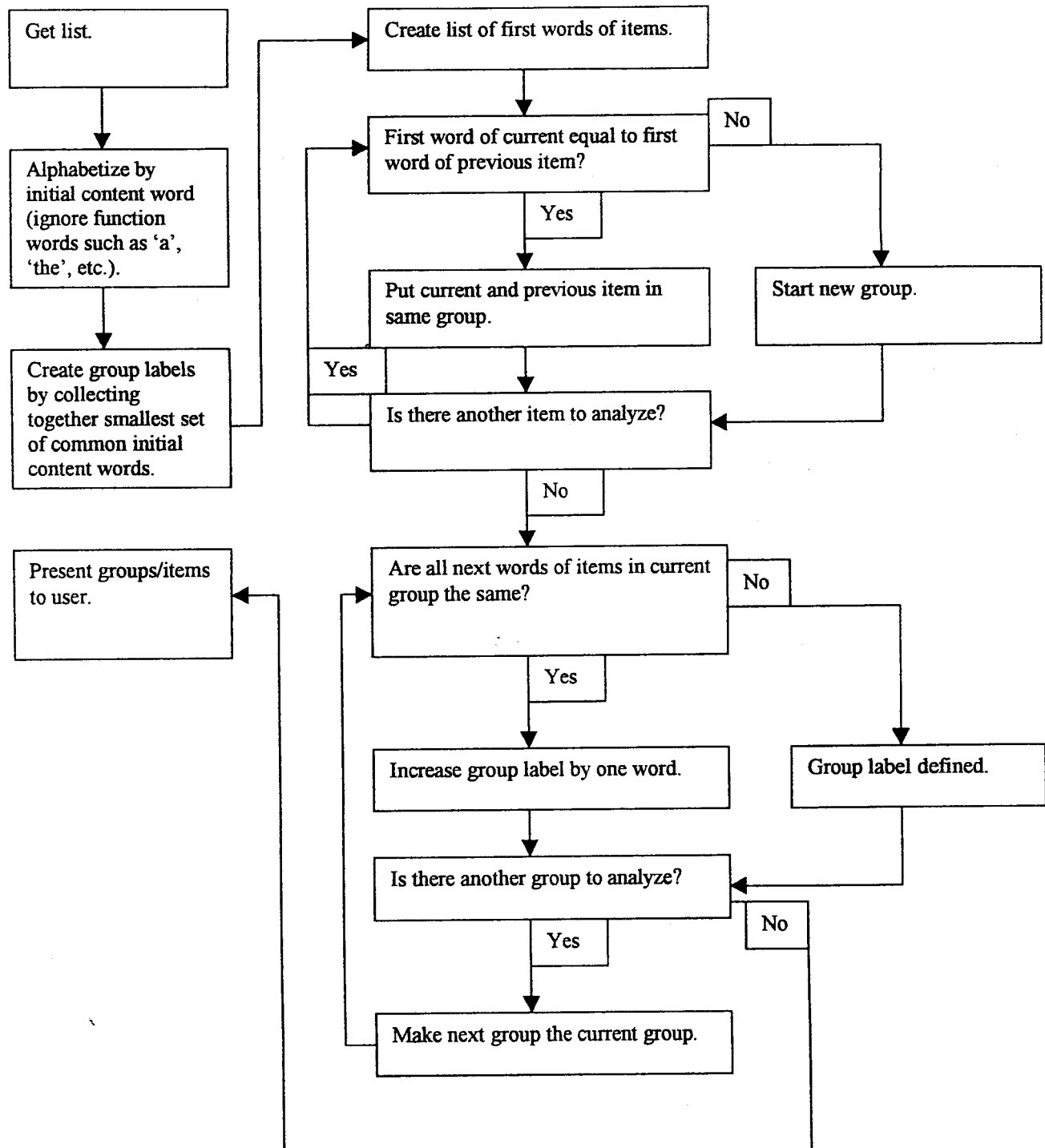   Usability Evaluation

Work

User: Usability Evaluation

Sys: 2 titles under Usability Evaluation. Choose one.

Usability Evaluation by Questionnaire
Usability Evaluation in Industry

User: Usability Evaluation in Industry

The following flowchart illustrates the compression method:

```
┌─────────────┐              ┌──────────────────────────────┐
│ Get list.   │         ┌───►│ Create list of first words of │
│             │         │    │ items.                        │
└──────┬──────┘         │    └───────────────┬───────────────┘
       │                │                    │
       ▼                │                    ▼                        No
┌──────────────┐        │    ┌──────────────────────────────┐    ┌──────┐
│ Alphabetize by│       │    │ First word of current equal to│───►│ No   │
│ initial content│      │    │ first word of previous item?  │    └──┬───┘
│ word (ignore  │       │    └───────────────┬───────────────┘       │
│ function words│       │              Yes   │                       ▼
│ such as 'a',  │       │                    ▼              ┌──────────────────┐
│ 'the', etc.). │       │    ┌──────────────────────────┐  │ Start new group. │
└──────┬───────┘        │    │ Put current and previous │  │                  │
       │                │    │ item in same group.      │  └─────────┬────────┘
       ▼                │    └───────────┬──────────────┘            │
┌──────────────┐        │        Yes     │                           │
│ Create group │        │    ┌───────────▼──────────────────────┐    │
│ labels by    │        └────│ Is there another item to analyze?│◄───┘
│ collecting   │             └───────────┬──────────────────────┘
│ together     │                     No  │
│ smallest set │                         ▼
│ of common    │          ┌──────────────────────────────┐      No
│ initial      │          │ Are all next words of items in│───┐
│ content words│          │ current group the same?       │   │
└──────────────┘          └───────────┬───────────────────┘   │
                                 Yes  │                        ▼
┌──────────────┐                      ▼              ┌──────────────────┐
│ Present      │◄───────  ┌──────────────────────┐   │ Group label      │
│ groups/items │          │ Increase group label │   │ defined.         │
│ to user.     │          │ by one word.         │   └────────┬─────────┘
└──────────────┘          └───────────┬──────────┘            │
                                      ▼                        │
                          ┌──────────────────────────┐        │
                          │ Is there another group to │◄──────┘
                          │ analyze?                  │  No
                          └───────────┬──────────────┘
                                Yes   │
                                      ▼
                          ┌──────────────────────────┐
                          │ Make next group the       │
                          │ current group.            │
                          └──────────────────────────┘
```

As an additional illustration, let the following list of tokens represent a set of items to present to the user.

```
W1   W2   W3   W4
W1   W5   W6   W7
W1   W8   W9   W10
W11  W12  W13  W14
W11  W12  W15  W16
W17  W18  W19
```

*Critical Questions (Questions 1 - 7 must be answered)

*Question 1

*Question 2

*Question 3

Question 4

Question 5

Question 6

Question 7

Question 8

Question 9

Patent Value Tool

n.)

Market

CLAIMS

PORTFOLIO NEED

EXPLOITATION & ENFORCEMENT

BUSINESS VALUE

Post Disclosure Text & Drawings

(Form Revised 12/17/97)

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November 17, 2000

Ackerman, Senterfitt
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REF: Invention Disclosure: BOC8-2000-0079
      Title: COMPRESSED LIST PRESENTATION FOR SPEECH USER
                 INTERFACES
      IBM Docket: BOC9-2000-0073

      Invention Disclosure: BOC8-2000-0092
      Title: ~~ADVANCED~~ ~~COMMANDS~~ ~~STARTING~~ ~~ENGINE~~ ~~WITH~~ ~~DYNAMIC~~
                 ~~PRIORITIES~~
      IBM Docket: BOC9-2000-0077

Dear Steve,

Please prepare and file the above referenced cases with the U.S.
Patent and Trademark Office. A copy of the invention disclosure
and technical evaluation are enclosed for your preparation of the
applications in accordance with IBM's format.

Sincerely,

Richard A. Tomlin

Richard A. Tomlin
Consulting Attorney

Enclosures